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Short Communication

Changes in the shark fishery at Cochin

*K. K. Joshi, K. Balachandran and S. G. Raje

Tuticorin Research Centre of Central Marine Fisheries Research Institute
*South beach Road, Tuticorin- 628 001, India. *E-mail: joshycmfri@rediffmail.com*

Abstract

A total of 30 species of sharks belonging to 14 genera and 7 families were landed at Cochin during 2000-2002 compared to 23 species landed in the earlier years. The large sharks landed were *Carcharhinus amblyrhynchos, C. amblyrhynchoides, C. amboinensis, C. brevipinna, C. sorrah, C. dussumieri, C. melanopterus, C. falciformis, C. limbatus, Rhizoprionodon acutus, Nebrius ferrugineus, Alopias pelagicus, Alopias vulpinus* and *Squatina squatina.* The main fishing season was between March and June, the fishing area was between Quilon and Ratnagiri and the gear was longline. The catch and CPUE were high during the two year study period due to landing of large-sized grey sharks. The species composition, length, weight and sex ratio of the sharks are presented in this paper.

In the Indian seas, Day (1878) reported 32 species of sharks belonging to 12 genera in 4 families. Talwar and Kacker (1984) compiled all the available records and reported 35 species of sharks belonging to 23 genera in 9 families. The changing pattern and expansion of fishing activities to deeper areas have resulted in the landing of a few species of sharks, which were not reported earlier. Considering this, an attempt was made to study the species composition of sharks landed at Cochin. Species composition of sharks landed at Cochin has been earlier reported by Silas *et al.* (1984), Nizar *et al.* (1988) and Menon *et al.* (1993).

Materials and methods

Data on the fishing effort and landing of sharks by longliners at Cochin Fisheries Harbour (CFH) during 2000–2002 were collected from Central Marine Fisheries Research Institute (CMFRI), Cochin. Species composition and biological data were collected from the landing centre through weekly observations. Actual number of sharks was estimated in the landing centre on the days of observation and the number was raised to monthly estimates. Length measurements were carried out in the harbour using a measuring tape and weight measurements by a spring balance with a capacity of 200 kg.

Results and Discussion

Fishery: The annual average shark landings by longliners at Cochin was 362 t during 2000-2002. The sharks were landed throughout the year, but higher landings were during May-August (Table 1). Before the year 2000 too, the sharks were reported all the year round with peak during May-

Table 1. Annual average effort (number of units), catch (t) and CPUE (kg/unit) of sharks landed by longliners at Cochin during 2000-2002

Month	Effort	Catch (t)	CPUE
January	452	13	29
February	283	6	21
March	415	24	58
April	346	9	26
May	696	83	119
June	661	66	100
July	586	22	38
August	665	58	87
September	675	18	27
October	313	8	26
November	362	35	97
December	462	20	43
Total	5916	362	61

Table 2. Species composition, length, weight and sex ratio of the commercially important sharks landed by longliners at Cochin during 2000-2002 (Sl. Nos.1-7 were not reported earlier at Cochin)

Sl.No.	Species	Estimated numbers	Percentage in shark landing	Length range (m)	Weight range (kg)	Sex ratio (M:F)	Peak season of landings
1	*Carcharhinus amblyrhynchoides*	4	0.01	1.50-1.70	62-76	ND	May
2	*C. amblyrhynchos*	212	0.49	1.10-1.70	40-101	1: 0.7	February-May
3	*C. falciformis*	3	0.01	2.30	66	ND	May-June
4	*Alopias pelagicus*	3078	7.09	1.80-2.50	40-80	1: 1.0	May-June
5	*A. vulpinus*	2365	5.45	ND	ND	1: 0.8	May-June
6	*Nebrius ferrugineus*	6	0.01	1.80-2.00	108-110	ND	September
7	*Squatina squatina*	2	0.005	1.00- 1.20	22 - 28	ND	September
8	*Carcharhinus macloti*	243	0.56	0.70-0.90	1.6 - 3.4	ND	May-June
9	*C. amboinensis*	217	0.50	1.20-2.30	65-120	1: 0.8	February- May
10	*C. brevipinna*	2745	6.32	1.00-1.50	30–70	1: 0.5	March-April
11	*C. sorrah*	5679	13.08	0.90-1.70	16-82	1:1.2	March-May
12	*C. dussumieri*	3078	7.09	0.81-1.20	10-25	ND	September-October, February-May
13	*C. longimanus*	708	1.63	1.50- 1.60	45 - 52	ND	September
14	*C. limbatus*	9466	21.81	0.90-2.10	34-100	1:1.9	August-September, January-May
15	*C. melanopterus*	5679	13.08	0.60-1.30	ND	1: 2	February-May
16	*Galeocerdo cuvieri*	2	0.005	1.20-2.30	ND	ND	September
17	*Rhizoprionodon acutus*	4816	11.10	0.70–1.20	1.5-6.8	ND	March- August
18	*R. oligolinx*	241	0.56	0.30-0.75	0.50-2.5	1:0.9	March-August
19	*Scoliodon laticaudus*	659	1.52	0.30-1.00	0.50-3.5	1:1.2	March-May
20	*Eusphyra blochii*	104	0.24	1.00-1.50	20-35	ND	February-May
21	*Sphyrna lewini*	3550	8.12	1.20-1.50	35-70	ND	February-May
22	*S. zygaena*	157	0.36	2.50-3.50	40-80	ND	February-May
23	*S. mokarran*	326	0.75	2.40-3.50	40-90	ND	February-May
24	*Chiloscyllium indicum*	12	0.03	0.40-1.00	0.50-5.3	ND	August
25	*C. griseum*	8	0.02	0.40-1.00	0.50-5.2	ND	August
26	*Chaenogaleus macrostoma*	7	0.02	0.50-1.50	0.60-12.0	ND	September
27	*Stegostoma fasciatum*	12	0.03	0.50-1.50	ND	ND	May
28	*Echinorhinus brucus*	18	0.04	1.00-1.50	ND	ND	October
29	*Centrophorus moluccensis*	4	0.01	0.70-1.00	ND	ND	October
30	*C. granulosus*	2	0.01	0.70-1.00	ND	ND	October
	Total	43403	-	-	-	-	

ND = No data

June in the driftnet and longliners landings at Cochin (Silas *et al.,* 1984; Nizar *et al.,* 1988; Menon *et al.,* 1993). Comparatively, the catches remained more or less steady throughout the year because of the operations off Cochin up to Ratnagiri or beyond.

Species composition: Silas *et al.* (1984) and Nizar *et al.* (1988) recorded 23 species of sharks belonging to 7 families in 11 genera in the landings at Cochin, out of which, *Galeocerdo cuvieri, Chiloscyllium indicum, Stegostoma fasciatum, Echinorhinus brucus* and *Centrophorus moluccensis* were reported to land occasionally. In the present study seven species other than those reported earlier at Cochin were recorded. A total of 30 species of sharks belonging to 14 genera and 7 families were observed at Cochin during the period 2000-2002 (Table 2). The landings included 4 genera and 15 species of Carcharhinidae, 2 genera and 4 species of Sphyrinidae, 2 species each of Alopidae and Hemiscyllidae and the rest of the families were represented by one genus and one species each. A shift in the fishery to large-sized species of sharks of the family Carcharhinidae was observed at this centre. The species composition, length, weight and sex ratio of the commercially important sharks are given in Table 2. The length and weight range shows that new species in the fishery are large sized sharks. In terms of estimated numbers, about 13% was those species which were not recorded earlier. *Alopias* spp. is the most common among the new species. *Carcharhinus limbatus*, *C. sorrah* and *C. melanopterus* were common among the others.

Fishing ground: The change in the species composition in the shark landings is due to the extension of fishing to deeper grounds by multiday vessels. George *et al.* (1993) reported the presence of large sized sharks (2.0-3.5 m and 50–150 kg) in 80-600 m depth at Angria Bank ($16^0 15'$– $16^0 47'$ N lat. and $71^0 45'$ – $72^0 18'$ E long.), off Ratnagiri. Sukumaran *et al.* (1989) reported another good shark ground in the deep waters between Malpe-Kollam and further south.

Introduction of multiday fishing by longliners based at Cochin enabled extension of fishing grounds in the waters between Cochin and Goa in the north and Kanyakumari in the south. Depth of operation also changed from 50 m to up to 1000 m. Increased demand for shark fins and meat encouraged the fishermen to expand the fishing operations and catch, sharks of families other than Carcharhinidae with larger fins and better meat quality.

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